A Newsletter of the Local Technical Assistance Program (LTAP)

T2 Bulletin

Issue 64, Fall 1999

LTAP-From Congress to You

"Assistance" is Our Middle Name

Ever wondered what LTAP is and how it relates to the Washington State Technology Transfer Center? The Local Technical Assistance Program, LTAP, is the federally funded program (with an equal state match) created by Congress for you, the nation's local agencies. It's a 50-50 partnership between the state and FHWA established through TEA-21 and previous federal authorization acts. LTAP was created to assist the country's cities, counties , and Indian tribes and nations in managing and maintaining your transportation infrastructure.

The LTAP is administered through FHWA and 57 Technology Transfer (T2) Centers nationwide with centers in each of the fifty states, one in Puerto Rico, and one in each of the six federal tribal regions. The Washington State Technology Transfer Center, WST2, is your LTAP T2 Center.

LTAP, through its Technology Transfer Centers, bridges the gap between new research and "real world" practice in the field by translating state-of-the-art technology into practical application at the local agency level. We accomplish this by providing training , engineering and technical field support, and a platform for technical information sharing between federal, state, and local agencies. Here is a quick summary of services provided by the WST2 Center in 1998:

- Provided 33 technical courses involving 960 students and over 15,000 student-hours of instruction.
- Provided 125 on-site training sessions at cities and counties providing instruction to over 1,300 students and 4,200 student-hours of instruction.
- Assisted in the development of and/or provided presentations to 8 technical conferences statewide reaching an audience of almost 900 engineers, technicians, and other public works employees.

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T2 LTAP

Washington State Technology Transfer Center WSDOT

Contents

- Published four issues of the T2 Bulletin and distributed to over 2000 subscribers.
- Provided support and assistance to several local agency technical associations around the state.
- Provided office assistance to approximately 4,000 customers and over 40 visits to local agencies to provide engineering and technical support.
- Distributed over 7,500 publications, an additional 7,000 information items, and loaned over 300 video tapes from our 400-video tape library.

So, next time you see LTAP, think of us, Washington State Technology Transfer Center, your LTAP T2 Center.

Alaska Experiences Success with Deicing and Anti-icing Strategies

From: http://www.ota.fhwa.dot.gov/icing/exchange/topics/anti_icing.html

An experimental trial period using a 28 percent magnesium chloride (MgCl) solution for both anti- and deicing was begun by Alaska DOT (AKDOT) in Valdez, Alaska, during the winter of 1996-1997. Maintenance and Operations (M&O) purchased 6,000 gallons of MgCl, four 75-gallon saddle tanks for the sanders, and a 2,000-gallon slip-in spray unit for anti-icing. This system allowed AKDOT to anti-ice prior to a storm event and to de-ice through prewetting sand applied to the snowpack. In 1997-1998, a 32 percent solution was specified.

During 1997-1998, most of the effort centered on the use of sand prewetted with MgCl. Before and after a storm event, sand was applied to the roadway and MgCl was sprayed onto the sand as it left the hopper belt. As the prewetted sand hit the snowpack, it melted, diluted, and refroze, embedding the sand into the pack. The sand provided immediate, long lasting friction with very little sand blown into the ditch by traffic. AKDOT experience found that the chemical continued to work, migrating through the pack over the next couple of days, turning the pack into a loosely arranged, oatmeal consistency. This was easily plowed off and some of it sublimated (changed from a solid to a vapor) as traffic aerated the mixture. This was the first winter when Valdez experienced mostly ice-free roads. Sand use was reduced by 30 percent. After experimenting with different application rates, AKDOT found 13 gallons per cubic yard optimal for conditions.

The Valdez station conducted anti-icing efforts by applying about 40 gallons of MgCl per lane mile prior to a storm event. This program seemed to work well in keeping ice bonds from forming during drier storms, but had poorer results in storms where it was diluted by rain.

Because of the success of the program, AKDOT has expanded the use of MgCl to the Cordova and Thompson Pass stations. Two 6,000-gallon storage facilities have been assembled and 5 sanders are now equipped with prewetting systems. Expansion to the colder, interior stations is under way, especially for use during the fall and spring.

Contact: Drew Sielbach, FHWA, Alaska Division, (907) 586-7544

Pacific Northwest Bridge Maintenance Conference Scheduled

By: Gary L. Bowling, Structure Maintenance Engineer, ODOT

After the 1999 ODOT sponsored Bridge Maintenance Seminar, representatives from FHWA, States of Oregon, Washington, Idaho, and Alaska, met to discuss the merits of the seminar and to determine if a multi-state bridge maintenance conference was warranted. All discussion participants fully agreed that a lot of good information could be gleaned from a multi-state bridge maintenance conference. As a result, we decided to sponsor a Pacific Northwest Bridge Maintenance Conference in 2000, as follows.

Dates & Times:
Tuesday, April 25, 2000,
8:00 a.m. - 5:00 p.m.

Wednesday, April 26, 2000
8:00 a.m. - 12:00 (noon)

Place:
Double Tree Hotel (Columbia River Complex)
Portland, Oregon

The Conference

The conference will provide a forum for various bridge maintenance crews, located throughout each state, to share information, innovations, creative ideas, and tricks of the trade. In other words this is your opportunity to strut your crew's stuff. It will cover topics such as maintenance procedures, maintenance standards, safety practices, and new methods for accomplishing our work. Most presentations will be given by bridge maintenance crew members, with a few vendor presentations and/or product/vendor displays mixed in.

The Presentations

We encourage every public agency and/or bridge maintenance crew, to have a presentation.

We also encourage vendor presentations that are directed towards bridge repair projects that exhibit a partnering with public agencies in the development of usable solutions.

In order to allow an adequate amount of time to develop an agenda, the development committee will send a call for presentations on November 1, 1999.

Questions or Comments

Please contact Gary Bowling or Greg Kolle at:

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Oregon Department of Transportation
355 Capitol St., NE, Rm. 301
Salem, Oregon 97301

(503) 986-3402
gary.l.bowling@state.or.us

Greg Kolle, Highways and Local Programs Bridge Engineer
Washington State Department of Transportation
PO Box 47390
Olympia, Washington 98504-7390

(360) 705-7379
kolleg@wsdot.wa.gov

Pacific Northwest Snowfighters In A Cold Business They Reap Hot Results

By Jack Manicke, Staff Superintendent, WSDOT

In the last year I have become involved with a dedicated group of people, the "Pacific Northwest Snowfighters" (PNS for short). They come together from the province of British Columbia and the states of Idaho, Oregon, Montana and Washington. These are the folks on the front line. They are the folks that get things done...they have to.

The PNS is a regional partnership that tests and approves anti-icer/deicer products used by our respective states and province. The group gets all affected parties involved in the testing of these products including the vendors. By asking the vendor's assistance in solving potential formulation and contamination problems they become an integral part of the solution. The partnering approach to doing business promotes cooperation in problem solving and buy-in by everyone in the final solution.

In the last few years with the combined knowledge and skills of its membership, PNS has put together testing protocols and specifications for anti-icer/deicer products that the vendors would like to see approved for our use. PNS is leading the nation in this area by setting the criteria for testing and product specifications for anti-icers/deicers.

"PNS is leading the nation... by setting the criteria for testing and product specifications for anti-icers/deicers."

The PNS is also involved in doing skid testing and studying the environmental effects resulting from use of the products. PNS just finished a report on skid testing which is available on the PNS Website.

The over all goal is to get the best anti-icer/deicer products available tested, approved, and out to our user groups at the cheapest cost possible. Thus, saving tax payer money. This is a challenge when you consider the wide geographic area that PNS covers.

For more information about PNS and what they are doing look them up on the Internet at: **http://www.wsdot.wa.gov/fossc/maint/pns/**

About the Author

Jack Manicke is a longtime member of the WST2 Advisory Committee. He has worked at WSDOT for 31 years and has extensive experience in both engineering and maintenance. His first seven years with the Department included construction inspection and surveying . He then switched to maintenance and worked at many varied jobs and positions, nine years of which he was a Maintenance and Operations Superintendent.

Jack has performed regular maintenance and snow and ice control on both Snoqualmie and Satus Passes and was very involved in the initial development of the residual herbicide "OUST."

Last year he was promoted to Staff Superintendent at the Olympia Service Center leading a group of folks focused on new technology and training development for maintenance employees statewide.

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Pacific Northwest Snowfighters Approved Product List

From **http://www.wsdot.wa.gov/fossc/maint/pns/aprodlist.htm**
Date of update: March 24, 1999

Note: Agitation or re-circulation of liquid products is recommended for all products before their use. Stratification of products containing corrosion inhibitors and/or other ingredients is very real even if you can't see it. Those products marked with an asterisk (*) indicates that the stratification can be seen. Re-circulation or agitation on all liquid products prior to use assures proper performance of the deicing, corrosion inhibiting, and other ingredients. The dates listed in the brackets( ) denote the date that the product was added to this list.

Category 1, Liquid Magnesium Chloride

FreezGard Zero with Shields LS from GSL	(5-19-98)
*Magnum Extra from America West	(5-19-98)
*Magnum Plus from America West	(5-19-98)
*Magnum L.C. from America West	(5-19-98)
*Magnum from America West	(5-19-98)
*IB7 from Dustchem	(5-19-98)
*IB4 from Dustchem	(5-19-98)

Category 2, Liquid Calcium Chloride

*Cal-Ban Extra from America West	(5-19-98)
*Cal-Ban from America West	(5-19-98)
*Cal Ban L.C. from America West	(5-19-98)
LIQUIDOW ARMOR	(3-24-99)

Category 3, Liquid Calcium Magnesium Acetate

CMA, 25% from Cryotech	(5-19-98)

Category 4, Corrosion Inhibited Sodium Chloride (solid)

Inhibited Ice Slicer from Envirotech	(5-19-98)
Meltdown 10 from Envirotech	(5-19-98)
CG-90 Non-PO4 2.8% from Cargill	(5-19-98)

Category 5, Corrosion Inhibited Sodium Chloride plus 10% Magnesium Chloride (solid)

CG-90 Surface Saver 10% from Cargill	(5-19-98)

Category 6, Corrosion Inhibited Sodium Chloride plus 20% Magnesium Chloride (solid)

CG-90 Surface Saver 22% from Cargill	(5-19-98)

Category 7, Calcium Magnesium Acetate (solid)

CMA from Cryotech	(5-19-98)

Category 8, Non Corrosion Inhibited Sodium Chloride

Cargill Dry from Doug Andrus Inc	(6-1-98)
Nu-Salt Dry from Nu-Salt	(6-1-98)

HPA, HCP, and ESA...Sorting Out the Alphabet Soup

By: Brian Hasselbach, Highways and Local Programs Environmental Engineer
Source: www.wa.gov/wdfw/hab/hpa/hpahcp.htm

With the March salmon identification listings and the subsequent requirements and guideline alterations which have stemmed from those listings, all of us should at least be aware of the Endangered Species Act of 1973 (ESA) by now.

Currently, a number of fish species are either listed as endangered or threatened, or are proposed for listing in the state of Washington. These listings include nine chinook, chum and sockeye salmon Evolutionary Significant Units (ESUs); four steelhead trout ESUs; seven bull trout Distinct Population Segments (DPSs); three west slope cutthroat trout ESUs; one sea-run cutthroat trout ESUs; and another two coho ESUs are candidates for listings.

The ESA, of course, requires prior approval by the National Marine Fisheries Service (NMFS) and/or the United States Fish and Wildlife Service (USFWS) for any activities or projects that could result in the "take" of a listed species. Take, as defined by the ESA, includes:

"to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such activity".

Harm has been further defined to include:

the "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering".

Now that all of these ESA requirements have become a significant mainstay in our projects and activities, a number of other processes and permitting agencies have had to evaluate the ESA compliance of their own activities. They have also had to initiate efforts to ensure protection against take or to obtain a take authorization for their activities.

The need for construction projects remains ongoing, and the number of habitat restoration and enhancement projects is increasing. Activities such as these which use, obstruct, divert, or change the bed or flow of state fresh and marine waters first require a Hydraulic Project Approval (HPA), a permit issued by Washington Department of Fish and Wildlife (WDFW).

The HPA is issued under the authority of chapter 75.20 RCW, and is required state-wide. HPAs are conditioned or denied solely for the protection of fish and shellfish based on rules promulgated under chapter 220-110 WAC.

Activities permitted under an HPA could result in a take of a listed species, even if the HPA is fully mitigated. If issuing an HPA would result in a take, then WDFW would need approval by one or both of the services prior to issuing the HPA. For activities or programs where no federal nexus (i.e., funding, permit, or land) exists, approval takes the form of an Incidental Take Permit. An approved conservation plan, a Habitat Conservation Plan (HCP), is required for issuance of an Incidental Take Permit.

An HCP is a voluntary agreement between the project applicant and one or both of the Services to ensure that an activity does not jeopardize the continued existence or recovery in the wild of a listed species.

WDFW is currently in the process of developing an HCP for their HPA regulatory program. The proposed programmatic HCP would:

- be statewide, addressing both fresh and marine waters with threatened and endangered fish and shellfish species;
- address a comprehensive list of activities for which an HPA is required;
- be for fish and shellfish only, since that is the limit of the Hydraulic Code authority, and
- be for the actual issuance of an HPA.

Ultimately, WDFW hopes to ensure an ongoing ability to issue HPAs, to comply with the requirements of the ESA, and to have long-term certainty for the HPA program and HPA permit holders. Take authorization received by WDFW through this project may be extended to the HPA recipient for that portion of the project covered by the HPA. Consequently, HPA recipients would not need to apply to the Services for their own individual Incidental Take Permit.

As you continue to complete your Section 7 and 9 ESA compliance documentation, particularly the biological assessments, the above discussion is important to keep in mind. The Services' review of project BAs will require discussion of the stipulations, limitations, requirements, and allowances of the HPAs (if applicable) until the HCP has been completed and approved by the Services. Simply stating that the project "will follow the conditions outlined by the HPA," may not be adequate for the Services' review and may not provide the assurances against take that the Services will be looking for. When drafting the BA documents, be sure to discuss the conditions of the HPA that will help avoid or minimize impacts to species. This will prevent further consultation or clarification in the long run with the Services.

For more information on the HPAs, WDFW's work on their HCP and upcoming public meetings, check out WDFW's website at **www.wa.gov/wdfw/hab/hpa/hpahcp.htm.**

Local Agency and Tribal Assistance sought as Streets and Roads Become Eligible for National Scenic Byway Funds

By Judy Lorenzo, Manager of the Heritage Corridors Program, WSDOT-H&LP

The 1999 legislature passed Substitute Senate Bill 5273, an act amending the Scenic & Recreational Highway Act of 1967. This is the statute that defines how routes become officially designated as Scenic Byways in the state of Washington. Until passage of this bill only state owned highways were eligible to be designated and to compete for National Scenic Byway grant funds.

The primary changes to the law include:

1. Allowing local agency, tribal or other public roadways to be included in the program.
2. Directing the department to develop revised criteria and software for assessing the visual quality of scenic byways and additional intrinsic resource values.
3. Requiring a report to be prepared by December 31, 1999 that addresses the application, designation and designation withdrawl process for all routes in the system, which is voluntary and dependent upon local advocacy and involvement.
4. Creating a class of routes called "Heritage Tour Routes." These routes can be a roadway, trail, or another kind of corridor that, although it may have compromised "scenic" quality, contains a substantial amount of historical or cultural resources.

The Heritage Corridors Program is looking for involvement by Cities, Towns, Counties, Tribes, Federal Agencies and local organizations. If you are interested in collaborating to improve the process so that it addresses your expectations, you are encouraged to contact Judy Lorenzo, Manager of the Heritage Corridors Program, at (360) 705-7274 or lorenzj@wsdot.wa.gov.

Fatal Collision Reduction Are Your Priorities Right?

By: Darlene Sharar, Traffic Technology Engineer, WST2 Center

Early this spring, I was tasked with "Reduce Fatal Collisions" by our then Assistant Secretary, Denny Ingham. I began, as many others have done, by researching the statistics to see where the highest fatal rates actually were. (My background is largely traffic design - signs, signals, work zone and traffic class training material development. I needed to learn more about traffic operations and collisions in general to began this specific task.) As you can see below, the research showed that county roads have the highest fatal collision rates and city streets have the highest collision rates.

Type of Highway	Highway Miles	Miles Traveled*	Fatalities	Collisions	Fatality Rate**	Collision Rate**
County Roads	41,329	4,224	224	23,468	2.77	254.70
State Highways	6,841	17,949	249	31,424	1.79	225.28
City Streets	12,523	11,520	107	80,796	0.93	827.74
Interstate	764	12,952	73	15,216	0.98	170.48
Other***	18,731	510	15	1,821	2.94	194.42
Tot./Ave. 93-96	79,820	48,155	868	152,725	1.72	265.62

*WSDOT estimate in millions of vehicle miles traveled. Source: WSP, WSDOT, WTSC
**Fatalities/collisions per hundred million vehicle miles.
***Includes parks/forest service roads. Does not include all-terrain-vehicle trails.

This gave me my starting point toward "Fatal Collision Reduction."

I realized that I seldom drive on county roads. My personal trips were mainly on city streets, state highways and the interstate system. Also, until September 1998, I worked exclusively on WSDOT facilities

I started to understand why county roads have higher rates one evening coming back from a friend's house - you guessed it - way out in the country on a county road. It was a typical western Washington, dark rainy night. I was not familiar with the area, this was my first trip to my friend's new house. The road was all black, no delineation at all was detectable. The speed limit was posted 40 mph, but I certainly was not comfortable going that fast. (The local driver behind me was encouraging me to drive faster though.) Part of my discomfort was knowing from my daylight drive out, that there were no shoulders on this road and a deep ditch was directly behind the edge of the road.

This trip began my understanding of and education about county roads from county engineers. I made appointments with many traffic safety experts to ask questions about fatal collisions on county roads. Those educating me were from counties, cities, WSDOT and the private sector. I asked what type of inexpensive fixes would help to reduce fatal collisions. I learned that fatal collisions are not unlike lightening strikes - often times "just occurring" and no real reason as to why. I learned that counties often times do not have the funding that WSDOT does to maintain delineation, signing and/or provide inexpensive fixes that could help reduce collisions.

All of the information and education that I was given taught me that a "Safety Management System's" systematic approach toward "Fatal Collision Reduction" is every County's goal. I learned that a SMS cannot be a one size "fits all" approach. Each county has different:

- causes for their fatal collisions
- weather conditions that can cause collisions
- road conditions
- driver patterns and behaviors
- levels of financial resource

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Each county must have the ability to customize their own "Safety Management Systems - Fatal Collision Reduction" program.

As a result of my recent education, I have drawn the following conclusions:

1. The transportation safety movement within the Pacific Northwest and on a national level continues to focus the greatest safety efforts on the Interstate and State Highway systems, systems with relatively low fatality rates.
2. Local county roadways have the highest fatality rates in Washington State, greater than either the Interstate or State Highway transportation systems.
3. The local roadway systems must receive national recognition and funding to improve their safety!
4. Redirection of the transportation safety movement emphasis to the local agency systems needs to begin...now.

Bicycle Compatibility Index:
A Level of Service Concept

By Mike Dornfeld, Manager Liveable Communities,WSDOT Highways & Local Programs

The Federal Highway Administration has released a new tool to help bicycle coordinators, traffic engineers, planners and others better plan for and design bicycle compatible roads.

The Bicycle Compatibility Index (BCI) determines how existing traffic and geometric conditions impact a bicyclists' decision to ride or not ride on a road. The BCI can be used to evaluate existing roads to determine what improvements may improve conditions for bicycling. The BCI can also be used to determine geometric and operational requirements for new roadways to insure a desired level of bicycle service.

The BCI model was developed by showing bicyclists videotapes of different roadway segments. Bicyclists rated the videotape segments on how comfortable they would feel riding under the roadway conditions. More than 200 bicyclists participated. They rated 80 roadway segments on a six-point scale. A rating of one indicated an extremely high comfort level, while a six indicated the bicyclists would be "extremely uncomfortable" riding under those conditions.

The BCI model is applicable to urban and suburban mid-block locations exclusive of major intersections. The model predicts the overall comfort rating of bicyclists using eight significant variables and an adjustment factor for three other road way characteristics. The variable with the largest effect on the BCI is the presence or absence of bicycle lane or paved shoulder at least three feet wide. The bike lane or paved shoulder reduces the BCI by almost a full point, indicating an increased level of comfort. An increase in other variables like traffic volumes or motor vehicle speeds increases the BCI, indicating a lower level of bicyclist comfort.

The BCI has been incorporated into a Microsoft Excel workbook to make it easier to use. Two publications are available to provide background information on the index. Development of the Bicycle Compatibility Index: A Level of Service Concept, Final Report (FHWA-RD-98-072) documents the research effort that created the BCI. The Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual (FHWA-RD-98-095) guides practitioners on the use of the index. Both publications are available from FHWA or at www.hsrc.unc.edu/research/pedbike/bci/. The BCI workbook can also be downloaded from the website.

For more information contact Mike Dornfeld at 360-705-7258 or dornfem@wsdot.wa.gov.

Association of Washington Cities (AWC) Most Requested Topics: Partnering and Roundabouts

By: Darlene Sharar, Traffic Technology Engineer, WST2 Center

During the Association of Washington Cities (AWC) June conference, two topics emerged as hot items among the States' cities:

1. Partnering with Washington State Department of Transportation (WSDOT) on state routes that run through their cities, and
2. Roundabouts - how to use them, when to use them, do they really work?

Partnering

Cities wish to be involved from the beginning in the decisions that are made with their downtown main streets. AWC is excited about "The Story of a Successful Partnership, Existing US2" through the City of Newport! The partnering and cooperation paid off with a wonderful new downtown that is pedestrian oriented, motorist friendly and just plain beautiful!

Many cities would like to make their state route, downtown main streets just as spectacular as Newport's is now. So, WSDOT and Highways and Local Programs engineers, be prepared to assist cities in future enhancement projects where our highways are a "cities main street!"

The parterning that took place in Newport is a prime example of how MANY different agencies CAN work together. The final efforts can be viewed on a trip through town at your leisure. Brent Rasmussen ,the Local Programs engineer for WSDOT's eastern region in Spokane, was the driving force behind this success story.

For those interested in developing your own partnering efforts you can contact your WSDOT regional Local Programs Engineer:

- Northwest Region - Terry Paananen (206)440-4734
- Olympic Region - Mike Horton (360)357-2666
- Southwest Region - Bill Pierce (360)905-2215
- South Central Region - Roger Arms (509)575-2580
- North Central Region - Stan Delzer (509)667-3090
- Eastern Region - Brent Rasmussen (509)324-6080

Roundabouts

Roundabouts ... they appear to be here to stay in Washington State. Not only do they appear to be here to stay, but information on roundabouts is a hot item. Areas either are really interested and want information on them yesterday - or want nothing to do with them at all. This appears to be a love/hate relationship!

Roundabouts are one more "tool" in a traffic engineer's "tool box." Roundabouts, like any traffic control option, must be designed and placed properly to work right. They are NOT the end all, to do all ... just another tool to help traffic ... pedestrian, bicyclist and motorist get from point A to point B safely. For additional roundabout information, please contact me at either sharard@wsdot.wa.gov or (360)705-7383.

Where the Rubber Meets the Road... HITEC Demonstration Deemed Successful

By: Nicole Testa, Project Manager, CERF
From: HITECH Newsletter, October 16,1999

During the past few weeks, four bridge decks in Wisconsin have been retrofitted with Italgrip, an innovative pavement treatment technology. A long section of highway will be retrofitted soon, and they will then move on to projects in three other states. All of the projects are demonstration projects being conducted as part of the HITEC evaluation of Italgrip.

Italgrip is a pavement treatment technology that increases the skid resistance of a road surface. It has been very successful in Italy and the Italgrip company is now marketing the product for use in the US. The HITEC evaluation is part of their marketing efforts and these projects are a major milestone for Italgrip. To date, everyone involved with the projects has been extremely happy with the results. For more information on Italgrip check out **http://www.cerf.org/hitec/eval/ongoing/italgrip.htm**

Recent HITEC Product Evaluation Reports Available

From: HITECH Newsletter, August 24,1999

To order any of these or other reports, contact HITEC at: **http://www.cerf.org/hitec/news/reports.htm**

- Summary of Evaluation Findings of Seismic Isolation and Energy Dissipating Devices (#40404)
- Evaluation of the Isogrid Retaining Wall System (#40363)
- Bioremediation in the Highway Environment: Three Case Studies (#40377)
- Evaluation Findings of Bondade CU-31 Bonding Solution (#40348)
- Evaluation Findings of the All Sign Products, Inc. Polycarbonate Stop Sign (#40308)
- Preliminary Evaluation Findings for Ice Ban (#40340)
- Guidelines for Evaluating Earth Retaining Systems (#40334)
- Evaluation of the Tensar ARES Retaining Wall System (#40301)

Small City Pavement Preservation Program (SCPPP)

By Paul Sachs, Pavement Technology Engineer, WST2 Center

The 1999 legislature included $5M for the SCPPP. The program is to be administered by the Highways and Local Programs Service Center. Two meetings were held this summer to develop guidelines for the program. Guidelines for the SCPPP were sent out to all cities with a population of less than 2500 in late August. When the 1999 legislature established this program, Motor Vehicle Excise Tax (MVET) funds were the intended source of revenue. If Initiative 695 were to pass in the November ballot, these funds would not be available. In this case, the legislature would re-evaluate this transportation program for funding.

If the SCPPP is funded, some of the key features of the program are as follows:

- All streets in a city's network are eligible for funding up to $50,000 per city during the first biennium.
- An inventory of all streets in a city's network is required.
- A Pavement Condition Rating (PCR) is required for all paved streets. Classes on the Streetwise pavement management system will be offered around the state in early Fall.
- Project funds will not be available for adding lanes.
- Each proposed project will need to have an existing pavement width of at least 20 feet.
- Each project must be on the six-year program when funds are approved by Highways & Local Programs.
- Each project will need to have a uniform cross slope, preferable 2% where possible.
- Project funds can be used to replace existing markings within project limits.
- Project funds can be used for only the following utility adjustments: iron involved with manholes; catch basins, water valve boxes; and monuments.

To help you with the Streetwise Inventory and train you in the use of Streetwise, the Washington State Technology Transfer (WST2) Center, in conjunction with the Association of Washington Cities (AWC), is available to provide training.

If you are interested in training or finding out more information on the SCPPP, please call Paul Sachs at (360) 705-7352 or e-mail sachsp@wsdot.wa.gov.

The Streetwise pavement management program is currently available in both the current and past issues of the Engineering Publications CD Library. If you have a copy of this CD, you will be able to print out the entire Streetwise manual, including additional inventory sheets. If you need a copy of the CD, please call Matt Love, WSDOT Engineering Publications, at (360) 705-7430, lovem@wsdot.wa.gov, or from the Engineering Publications web page at: **http://www.wsdot.wa.gov/fasc/EngineeringPublications/order.htm.**

Technology in Rural Transportation

A recent study documented more than fifty proven, cost-effective, "low-tech" solutions to rural transportation needs, most developed or implemented by local transportation professionals. One of these solutions is outlined below

Learn all about the simple solutions on the Internet at http://inform.enterprise.prog.org

The simple solutions report is available from Hau To at (651) 686-6321, or email: to@crc-corp.com

Radio Controlled Crosswalk Push-Buttons

Overall goal:	To make crosswalk signal activation easier for disabled pedestrians.
Technical approach:	The system uses a hand-held radio device similar to a garage door opener. When a button on the device is pressed in the vicinity of an equipped crosswalk, the request for the "walk" signal is activated.
Current status:	Prototype devices have been successfully tested in a laboratory environment.
Location / geographic scope:	City of Colorado Springs, Colorado.
Agencies involved:	City of Colorado Springs.
Cost information:	It is estimated that it would cost less than $500 to equip a crosswalk with the necessary receiver. Costs for the hand-held devices should also be very low.
Key contacts:	JohnMerritt, City of Colorado Springs. (719) 578-6663.
Have goals been achieved?	
Solution timeline:	The City of Colorado Springs is considering handing over the project to local college students as an engineering project. No specific target dates for system implementation have been set.

U.S. Department of Transportation
Federal Highway Administration

Funded by

ENTERPRISE

FHWA Releases Y2K Manual For State and Local Governments

From U.S. DEPARTMENT OF TRANSPORTATION
Office of the Secretary ~ Office of Public Affairs Washington, DC 20590

The U.S. Department of Transportation (DOT) has published a Year 2000 resource guide to help state and local transportation agencies who have the primary responsibility for operating many of the nation's transportation systems prepare for the Y2K transition weekend.

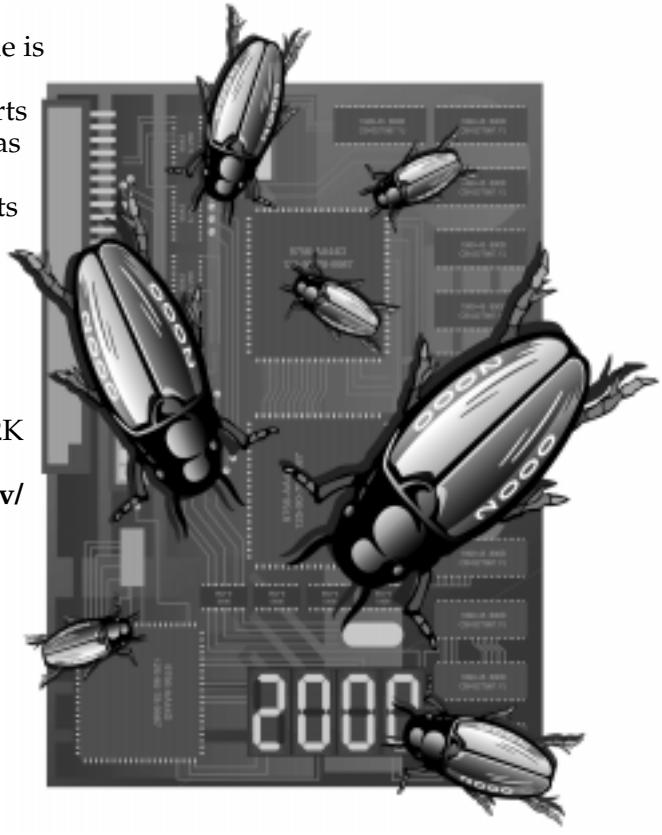
"President Clinton and Secretary Slater have made solving the Year 2000 problem a top priority," said Deputy U.S. Secretary of Transportation Mortimer L. Downey. "Following their direction, the U.S. Department of Transportation is giving our partners who are on the front lines technical guidance and access to the resources they need so that their transportation systems will work as well on Jan. 1, 2000, as they did on the day before."

The guide, "Are You Ready? Managing Transportation Resources Through the Y2K Weekend," provides local governments with the findings of a workshop sponsored by DOT and Public Technology Inc. The session brought together 20 local and state officials to develop a plan to address and manage the Y2K problem. The session drew on the expertise of leaders in a wide range of transportation-related organizations to develop materials to help ensure local government readiness for Y2K.

The guide is designed to help localities, regions and states develop contingency plans and to use their staff and resources effectively to ensure that the transportation system is properly managed and operated during the Y2K transition weekend period.

This resource guide is one in a series of Y2K outreach efforts that the USDOT has made available in conjunction with its transportation partners.

Copies can be obtained from the Federal Highway Administration Y2K website at **http://www.fhwa.dot.gov/y2k/y2kread.htm** or by calling (202) 366-8033.



Digital Cameras... What's the big deal?

By: Bradley J. Roberts, Western Federal Lands Highway Division
From: Technology Development News, January 1999

Instant gratification is the first big deal about digital cameras, since you can review the images almost instantly. On the spot changes in picture composition without the waste of film or waiting for the return of lab film is the economic and time resource deal. Don't like what you see? Erase it and try again. Easily transfer pictures to a computer and post process the images (lighten, sharpen, color correct, crop, etc) with an inexpensive software package. There is no film to develop or development costs, no labs, and no waiting. Within minutes, captured pictures can be easily and privately transmitted via e-mail to the office, clients, family, and friends.

Digital camera purchases have surpassed conventional 35-mm SLR camera purchases for the past 3 years. Entry-level point-and-shoot cameras costing less than $1,000 are the biggest market share with business use growing significantly. Three overlapping market segments have emerged: family, business, and semiprofessional users. The availability of inexpensive CD-Writers for photo storage and printers capable of photo-realistic output make a digital camera a smart add-on. PC Magazine Online has two excellent articles about the present and future of digital cameras:

- "Crossing the Threshold: Digital Cameras" - PC Magazine - from February 10, 1998.
- **http://www.zdnet.com/pcmag/features/digicam2/_open.htm**
- "Digital Cameras: Closing the Gap" - PC Magazine - from January 19, 1999.
- **http://www.zdnet.com/pcmag/features/digicam99/index.html**

Here are three summaries of digital camera uses in our work.

Pete Fields, Bridge Inspection Engineer

Digital photography has been a great benefit for the Bridge Inspection Team in Vancouver, Washington. The obvious advantages are that photographs are immediately available after downloading from the camera to the personal computer. The photographs can be resized or cropped on the personal computer, and we now have the ability to lighten or darken the photographs. Being able to manipulate the photographs after they are taken is a real advantage.

The biggest advantage to the bridge inspection team is that the photographs are now data. They are simply another field in our database that stores a bitmap image. In the old system there was a minimum of 1 page in each 8 page report that contained hard copy photographs. This page would always have to be copied separately from the black and white pages. Also, if someone wanted all the bridge pictures for a certain park, we would go through by hand and pull out the color pages for copying.

Now the photographs are stored in our database, right along side the other bridge data (length, type, location, material, etc.). Someone could ask for all the pictures associated with bridges over 50 feet that are concrete in Yellowstone National Park. Being able to ask questions of the database and have the pictures be part of the answer is a definite improvement. Also, the color pages of the bridge report are simply another page that is printed out (on a color printer) along with the rest of the report. This makes the report stand alone. We would not have to pull out the color page, make one copy, and then insert it into the black and white pages. The

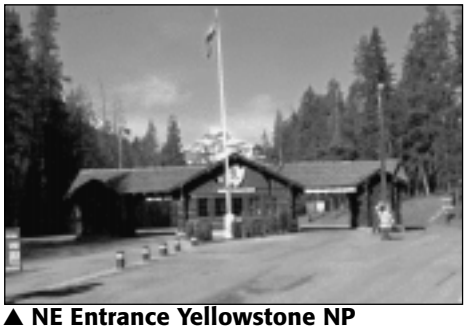
▲ **Steven Canyon Road Mt. Rainer NP**

Please continue to next page ☞

days of managing hard copy photographs are over; our pictures are just another piece in the database, as they should be.

John Snyder, Project Engineer

I experimented with the camera for about a month. To view the files, I downloaded a free trial version of Photoshop Deluxe, or something like that. I took a total of about 50 images, which I downloaded to my laptop with the camera software. I was impressed with the quality of the images (1280 x 1000 fine). One thing I like about the digital technology is that you only have to "keep" the images which really show what you want.



▲ NE Entrance Yellowstone NP

With a conventional camera you may take 5 to 10 photos of an operation the contractor has going, to make sure you have at least two or three which look good and show the basic work. You have to pay for developing a lot of pictures which you may end up throwing away. With the digital, you can preview the images, and simply delete the ones which do not show the work very well. My intent was to do some testing with sending images to my Construction Operations Engineer as an attachment to E-mail, to simulate a scenario where you were having problems or needed answers to some contract issue in a hurry, and wanted to send images to show clearly what was going on. I never got this done, though. I think this would be one of the most important uses for these cameras in the field.

Robin Gregory, Environmental Consultant

WFLHD generously allowed me to use their digital camera to document construction projects that I was reviewing. The project was to gather information about the erosion control measures and the process used to implement them on a variety of projects in Washington, Oregon, Alaska, Idaho, Montana and Wyoming. I used the camera in the month of October and early November so was able to use it in a variety of weather and light conditions. To look at these projects I had to travel both by car and by airplane. The folks at WFLHD Technology Development stored the photos on a CD for me to use in the production of my report.

▲ Elk Creek Fish Passage, Oregon

I believe that the camera performed very well. In the interest of time and wet weather I used the digital camera in its automatic settings mode as a point and shoot camera. I believe that it wouldn't have been too difficult to use with manual settings. In the dark gray, drizzly weather of southeast Alaska the photos were on the dark side and the camera sensors warned me that low light conditions existed. However the photo software had the capability to modify the pictures in a variety of ways. Post processing with an inexpensive software application produced a reasonable light and detail quality that probably would not have happened with conventional photo processing.

The camera has a zoom feature that works with a push button. The zoom feature is a 3x zoom, equivalent to a focal distance range of 35-105mm on a conventional 35mm camera. The "film" or memory cards are very easy to use; a small card fits in a slot in the camera. The quality of the pictures I was taking is adjustable. The higher the quality of the image that is recorded the more memory it requires. There is a read out of the number of exposures that are available for use and the quality of the photo that you have chosen. The batteries easily held the charge necessary for a day or two's photos and recharged in less than an hour. I didn't have

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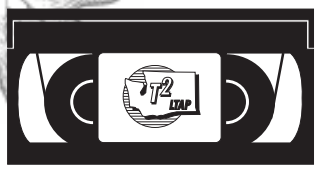
a lap top computer with me in the field but I was able to review photos at the end of the day by hooking the camera up to the hotel TV with a single cable. That didn't allow me to go back to retake photos if they weren't good but I knew what I had.

The biggest benefit of using this technology came at an overnight stop back in the office. We were able to hook the camera to a lap top computer and a projector and have a slide show the day after I had been in the field. If I had used conventional film this would have been difficult because of the time needed to drop film off, get it processed and pick it up. This holds huge potential and I didn't have to spend a lot of money developing black shots of the lens cap. I was concerned about the well being of the camera when I used it in the rain which I would not have had with a fully manual 35mm camera. I worked to not get the camera wet and didn't have any problems. I found that the carrying case worked well. It can be stowed in the carry on bins on larger planes, but must be checked on the smaller commuter planes used in Alaska. Since I didn't carry a laptop in the field with me, it would have been nice to have a camera that has a built in photo review feature, but I think that was a minor problem. I believe that for most of my work requirements the digital camera is an advantage. I believe that the hard copy of the photos can and will be improved in the future.

Digital cameras are here to stay. In 1991, only one digital camera company existed; today there are numerous companies that each carry their own full product lines. Unlike conventional cameras, digital cameras are computer devices and can be found at your favorite camera and computer store or Internet shopping site. Kodak's Digital Learning Center http://www.kodak.com/US/en/digital/dlc/, is an easy to follow online resource designed to teach digital fundamentals. Without mentioning specific brands, vendors, or Internet sites, a key word search "digital cameras" found over 600,000 links to discussion groups, information, and companies/vendors that are selling, reviewing, and discussing digital cameras. Improvements in digital technology & features driven by corporate competition will only cause sales to grow exponentially and improve price vs. performance. The immediate advantages of simplistic picture capture, viewing & editing capabilities, and convenience far outweigh the disadvantage of price.



Walkable Communities: Designing for Pedestrians

Videotape of the class by Dan Burden. Four tapes, 5.5 hours. Available for purchase ($75) or can be borrowed by local agencies. Call T² Center for further information (360) 705-7386 or grayl@wsdot.wa.gov.

Fifth International Conference on Managing Pavement

August 11-14, 2001

Seattle, Washington, USA
Washington State Convention & Trade Center
Organized by Washington State Department of Transportation

Conference Venue

The Fifth International Conference on Managing Pavement will be held in the Washington State Convention & Trade Center located in the heart of Seattle, Washington, on August 11-14, 2001. The Conference is expected to build on the success of the previous conferences on Pavement Management held in Toronto, Ontario, Canada, 1985 and 1987, the Third International Conference of Managing Pavements held in San Antonio, Texas, in 1994, and the Fourth International Conference on Managing Pavement held in Durban, South Africa, in 1998.

Conference Objective

The objective of the Fifth International Conference is to further enhance the understanding and use of pavement management by transportation agencies and practitioners and further develop its relationship with infrastructure and asset management. The primary focus of this conference will be on closing the gap between vision and reality so that the full benefits of using pavement management professionals from throughout the world–combining input from practitioners, academics, private industry, and governmental agencies–to present, discuss and exchange experiences, ideas and proposals related to the conference theme.

Peer Review and Editorial Process

Potential authors are invited to submit an abstract that clearly conveys the content of their pages by October 29, 1999 in electronic format (Word or Word Perfect). Authors will be notified of acceptance of their abstract in February 2000. All papers will be subject to a peer review in accordance with standard Transportation Research Board (TRB) policies and practices.

It is the author's responsibility to verify receipt of the electronic document by committee members prior to the conference deadline.

Conference Format (Themes and Tracks)

The Fifth International Conference will have the theme of : *"Closing the Gap Between Vision and Reality"*

Within this overall theme there will be the following five areas of concentration:

1. Integrating a PMS with Transportation Asset and Infrastructure Management
2. Ensuring a PMS Continues to Meet an Agency's Needs
3. Collecting and Analyzing PMS Data
4. Applying PMS Information to Construction and Maintenance Programs
5. Adopting and Using Innovative Approaches

Since there is a distinct difference in the way specific types of agencies (state highway agencies, local agencies, airports, etc.) must treat these subjects, the five areas of concentration will be further subdivided into the following four tracks:

Tracks

1. National & State Highway Agencies
2. Airport Agencies
3. Local Agencies & Authorities
4. Privatized Agencies & Authorities

Abstract Submittal Requirements

Papers are being solicited by the Conference Steering Committee. These papers should focus on the conference themes–presenting new developments and applications. Papers should be geared towards the interests of one or more of the specific conference tracks.

Persons interested in preparing a paper for the Fifth International Conference should submit a one page abstract describing the objectives, scope and findings of the work that is being offered. Please identify the appropriate area of concentration and track for which your paper should be considered–along with the corresponding numbers. The persons submitting abstracts should ensure that the title of the paper, author(s), address(s), phone number(s), fax number(s), e-mail address(es), and abstract are all contained on the same page. If there are multiple authors, please identify the contact author to whom all correspondence will be directed.

The abstract must be submitted by October 29, 1999, in electronic form (Word or Word Perfect) via e-mail or disk to:
5th International Conference on Managing Pavements
Engineering Professional Programs
University of Washington
10303 Meridian Avenue N. #301
Seattle, Washington 98133-9483
E-mail: pavements@engr.washington.edu

For More Information

Conference Secretariat:
Engineering Professional Programs
University of Washington
Phone: 206-543-5539
Fax: 206-543-2352
E-Mail: pavements@engr.washington.edu
URL: **www.engr.washington.edu/epp/pavements**

Technical Program:
Roger Smith, Conference Chairman
Texas Transportation Institute
Phone 409-845-0875
E-mail: roger-smith@tamu.edu

Please return this form if you or a colleague are interested in obtaining additional information.

Mail to:
Engineering Professional Programs, University of Washington, 10303 Meridian Avenue North #301, Seattle, WA 98133-9483 USA

Mailing List

❑ Please add me to the conference mailing list.

❑ Please add me to the distribution list for:

❍ Exhibition space ❍ Sponsorship

First Name: _____ MI _____

Last Name: _____

Organization: _____

Address: _____

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City: _____

Zip/Postal Code: _____

Country _____

Telephone: _____ Fax: _____

E–mail: _____
(please print carefully)

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First Name: _____ MI _____

Last Name: _____

Organization: _____

Address: _____

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City: _____

Zip/Postal Code: _____

Country _____

Telephone: _____ Fax: _____

E–mail: _____
(please print carefully)

FHWA Conducts Crash Test with W-Beam Guardrail

By: Charles McDevitt
From: FHWA, Research & Technology TRANSPORTER, Aug. 1999

FHWA recently conducted a crash test at the Texas Transporter Institute's Providing Grounds on a transition design that was a W-Beam rub rail. To date, very few guardrail-to-bridge rail transitions have been tested in accordance with NCHRP 350.

By using computer simulation, researchers determined that the critical impact point was to be 1.5 m from the end of the rigid concrete section. The 2000-kg pickup truck impacted the transition at 100 km/h and an impact angle of 25 degrees. The pickup truck was redirected and remained upright. The test results met the evaluation criteria for Test Number 30-21 in NCHRP Report 350.

In the design used for this test, the upper and lower W-beam rails were connected to a vertical face on an independent concrete end block which was shaped so that it would transition from a vertical section to a NJ-shape over a 3.05-m length. This is a versatile transition design because it can be used to connect the guardrail to either a NJ-shape or a vertical concrete bridge rail. The independent concrete end block has a large spread footing, which can be eliminated if the end block is adequately attached to the wing wall abutment.

When conducting the test, it is important to properly lap the W-beam rails over the end shoes in the direction of traffic. In an earlier test, the end shoes were improperly lapped over the W-beam rails. As a result, the edges of the end shoes formed a snag point that caused the pickup truck to roll 45 degrees towards the barrier before coming to a complete stop.

Charles McDevitt
(202) 493-3313
charlie.ncdevitt@fhwa.dot.gov

▲ W-beam transition redirected the pickup truck, which remained upright.

MoDOT Debuts Scrub Seal Maintenance Treatment

From: FHWA, Research & Technology TRANSPORTER, Aug. 1999

The Missouri Department of Transportation (MoDOT) introduced its scrub seal maintenance treatment at the Iowa Summer Maintenance Expo held April 19.

MoDOT implemented its first scrub seal in 1996 with the support of FHWA's Office of Technology Applications. By the end of the 1999 construction season, MoDOT will have about 1295 km of scrub seal in place.

Scrub seal materials is an anionic-charged, polymer-modified, asphalt agent that is applied to asphalt pavement surface. The materials rejuvenates a dry, oxidized, and cracked surface, but it does not improve the structural condition of the pavement.

The oil-based agent is sprayed on and then scrubbed into cracks and voids by a truck dragging a 3.66 m-wide, X shaped tool with about three dozen broom heads attached. The asphalt is quickly followed by a layer of small aggregate such as sand or cinders, which is scrubbed into cracks and voids by a second broom. A pneumatic tire roller then rolls the seal. Under ideal weather conditions of 21-32 degrees C, the road can be opened to traffic within two hours.

Compared to other preventive maintenance treatments–such as a one-inch hot-mix overlay, a chip seal, or microsurfacing–a scrub seal is faster to apply. It lasts about 4 years, and it's basically maintenance free. At about $3,000 per mile, scrub seal is also significantly cheaper.

What's the downside? Since it's meant as a preventive maintenance treatment, it is appropriate only for pavements already in sound condition. For more information, call the contact below.

Ivan Corp
(816) 889-6403

▲ By the end of the 1999 contruction season, MoDOT will have about 1295 km of scrub seal in place.

New DOE Stormwater Manual Available for Your Review!

by Jim Seitz, PE, Transportation Specialist, Association of Washington Cities

In 1992 the Washington State Department of Ecology published its Stormwater Management Manual for the Puget Sound Basin. Local jurisdictions and businesses have used this manual to design stormwater programs to protect Washington State's waters from stormwater runoff.

With help from technical advisory committees, the state of Washington's Department of Ecology staff has been working for the past several months to review, update, and expand the manual for state-wide use. The objective of the manual is to provide guidance on the measures necessary to control the quantity and quality of stormwater produced by new development, such that they comply with water quality standards and protect beneficial uses of the receiving waters.

The new manual titled Stormwater Management in Washington State is organized into five volumes. The volumes will be published as separate documents to make it easier for the user to find needed information and to make it easier to publish future revisions.

It is now available for public review. The comment period on the public review draft will end December 15, 1999, and a final draft should be out by mid-February 2000. Ecology expects to publish a revised manual by the end of April 2000. Ecology will also conduct public meetings around the State during both the review and final draft comment periods.

If you have any questions on the proposed schedule or public review process, please e-mail Tony Barrett at tbar461@ecy.wa.gov or call him at (360) 407-6467.

About the Author

Jim Seitz is a new member of the T2 Advisory Committee. A graduate of Gonzaga University, Jim lives in Olympia with his wife and three daughters. Jim is currently a Transportation Specialist for the Association of Washington Cities (AWC) where he has worked since January 1999. Prior to joining AWC Jim worked as a Transportation Engineer for the City of Des Moines managing the Transportation Division of the city's Public Works Department. In his nine years at Des Moines, his work included grant writing, pavement management, traffic safety, construction project management, and stormwater management. Jim also worked with Yakima County for one year in their Traffic Section.

WSDOT Library Your info Link

Helpful tips and other resources from the WSDOT Transportation Library

Good Links for Engineering Specifications and Standards

1. NSSN: A National Resource for Global Standards
http://www.nssn.org/index.html
Although the NSSN web site is sponsored by ANSI, it serves as a central point to search for standards information from many sources. You can search by keywords or number.

2. Global Engineering Documents
http://global.ihs.com/
Global Engineering Documents is arguably the world's leading distributor of U.S., international and national standards, specifications and technical publications. They are in the business of selling standards, but you can search their comprehensive database for free. Their web site is heavily used and can be slow, but it is another invaluable resource when you have incomplete information on a standard's title or number.

3. Index of Federal Specifications
http://pub.fss.gsa.gov/pub/fed-specs.html
The Index of Federal Specifications, Standards and Commercial Item Descriptions (FPMR 101-29.1) is useful for locating information on federal specs.

4. DODSSP
http://www.dodssp.daps.mil/
"The Department of Defense Single Stock Point for Military Specifications, Standards and Related Publications." This is the best site we have found for researching military specs.

5. Links to WSDOT Standard Specs and Plans
http://www.wsdot.wa.gov/HQ/Library/pubs.htm#wsdot

The WSDOT Library staff gather links to WSDOT publications on this page.

Free Publications From Your T² Center

For Washington residents only due to limited quantities.

Name: _____

Agency: _____

Address: _____

City: _____ **Zip** _____

Phone: (_____) _____

Check the items you would like to order.

- ❑ Current Application and Successful Implementation of Local Agency Pavement Management in the United States, FHWA, 1997
- ❑ Scrap Tire Utilization Technologies, NAPA
- ❑ State-of-the-Art Survey of Flexible Pavement Crack Sealing Procedures in the United States, CRREL, 1992
- ❑ Maintenance of Aggregate and Earth Roads, NWT² Center (1994 reprint)
- ❑ International State-of-the-Art Colloquium on Low-Temperature Asphalt Pavement Cracking, CRREL
- ❑ Family Emergency Preparedness Plan, American Red Cross, et al.
- ❑ Getting People Walking: Municipal Strategies to Increase Pedestrian Travel, Rhys Roth, Energy Outreach Center
- ❑ The Superpave System – New Tools for Designing and Building More Durable Asphalt Pavements, FHWA
- ❑ A Guide to the Federal-Aid Highway Emergency Relief Program, USDOT, June 1995
- ❑ Pothole Primer — A Public Administrative Guide, CRREL, 1989
- ❑ Redevelopment for Livable Communities, Rhys Roth, Energy Outreach Center
- ❑ A Guidebook for Residential Traffic Management, NWT² Center, 1994
- ❑ A Guidebook for Student Pedestrian Safety, KJS, 1996
- ❑ Pavement Surface Condition Field Rating Manual for Asphalt Pavement, NWPMA, WSDOT. 1999
- ❑ A Guide for Local Agency Pavement Managers, NWT² Center, 1994
- ❑ Local Agency Pavement Management Application Guide, NWT² Center, 1997
- ❑ Positive Guidance and Older Motorists — Guidelines for Maintenance Supervisors, Texas A&M
- ❑ Evaluation of Automated Pavement Distress Data Collection Procedures for Local Agency Pavement Management, Texas A&M, WSDOT, ODOT 1996
- ❑ Traffic Calming: A Guide to Street Sharing
- ❑ Basic Metric System, WSDOT
- ❑ The Impact of Excavation on San Francisco Streets. This study evaluates the impacts utility cuts have made to the street and road network, September 1998
- ❑ Rating Unsurfaced Roads, CRREL, A Field Manual for Measuring Maintenance Problems
- ❑ The Pedestrian Facilities Guidebook, WSDOT
- ❑ 1999 Audio Visual Catalog, T² Center
- ❑ Unsurfaced Road Maintenance Management, CRREL 1992
- ❑ The New Generation of Snow and Ice Control, FHWA
- ❑ Asphalt Sea Coats, NWT2 Center (1999 Reprint)

Workbooks and Handouts From T² Center Workshops

- ❑ Access Management, Location and Design, FHWA/NHI, 1998
- ❑ Access Management Guidelines for Activity Centers, NCHRP Report 348, TRB/NRC, 1992
- ❑ Handbook for Walkable Communities, by Dan Burden and Michael Wallwork
- ❑ Geosynthetic Design and Construction Guidelines, FHWA/NHI 1995
- ❑ Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas, TRB
- ❑ Historic and Archeological Preservation: An Orientation Guide, FHWA/NHI
- ❑ Partnering Handbook, FHWA/NHI 1995
- ❑ Maintenance Welding Techniques and Applications, Tom Cook, Cornell University, 1995
- ❑ Construction of Portland Cement Concrete Pavements, FHWA/NHI 1996
- ❑ Rockfall Hazard Mitigation, FHWA/NHI 1994
- ❑ Roadside Safety Features, WSDOT 1997
- ❑ Bicycle Facility Planning and Design Workshop, Northwestern University

Self-Study Guides

- ❑ The following noncredit self-study guides are available through WSDOT Staff Development and can be obtained from the T² Center. An invoice will be sent with the books.
- ❑ Technical Mathematics I, $20
- ❑ Technical Mathematics II, $20
- ❑ Contract Plans Reading, $25
- ❑ Basic Surveying, $20
- ❑ Advanced Surveying, $20

Orders may be faxed, mailed, or phoned to
Laurel Gray
Phone: (360) 705-7386
Fax: (360) 705-6858
Mailing Address: WST² Center, WSDOT
H&LP P.O. Box 47390
Olympia, WA 98504-7390

Computer Programs

The following computer programs may be downloaded from the Internet at:
http://www.wsdot.wa.gov/TA/Operations/Environmental/Soft.htm

Design Cost Estimate. A software database program that calculates cost projections based on standard items.

Materials Approval Tracking. A software program designed to track materials data, need, status, and approval of any materials sampling and documentation needed for approval.

HyperCalc. A shareware utility for converting between metric and English units.

Force Account Macros. A series of ready-made Excel spreadsheets and macros to save you time on daily force account calculations and reports, including wage and equipment rates.

APWA CAD Symbol Standards and Menus. A public domain program of standard AutoCAD symbols developed by the Washington Chapter of APWA for use with AutoCAD release 14. The program may also be downloaded at **http://users.ap.net/~fredlee**

Microsoft Access Runtime Program. Assists in running the Materials Approval Tracking and Design Cost Estimate Program.

UTEC System. A software program consisting of a main menu designed to provide a record base for identifying street locations within an agency.

Opportunities to Enhance Your Skills

For more information, contact the training provider listed.
For additional training needs contact the Washington State T² Center at:
(360) 705-7386 or 1-800-973-4496. **http://www.wsdot.wa.gov/TA/T2Center/TRAIN2.htm**

Washington State T2 Center

Contact Laurel Gray, Training Coordinator
Ph: (360) 705-7386
Fax: (360) 705-6858
http://www.wsdot.wa.gov/TA/T2Center/TRAIN2.htm

Introduction to the Endangered Species Act and Biological Assessments
November 10, Lacey; November 17, Lynnwood; November 19, Yakima. $35.
Designed for individuals involved with conducting biological assessments for local and state transportation projects: city and county public works directors, engineers, biologists, technicians, consulting firms. The class provides an overview of the Endangered Species Act (ESA) as well as explains the implications of the addition of a species to the ESA listings and the impact it will have on both local and state transportation projects. Includes an in-depth look at key components to include in a biological assessment, describes what to look for at a project site when evaluating the impact of the project on the surrounding environment and how to write the assessment.

Snow and Ice Roadshows
Three to four hour session can be presented at your agency. Thru December 1999. Free.
In lieu of the usual fall roadshow, T2 is offering personalized training at local agencies by a snow and ice specialist.

Coming in Spring 2000

Bridge Condition Inspection Fundamentals
WSBIS (Washington State Bridge Inventory System)
Bridge Condition Inspection Update
Bridge Condition Inspection Training
Bridge Supervisor's Forum
Pavement Condition Rating Workshops
Superpave for Local Agencies
Introduction to the Endangered Species Act and Biological Assessments

Northwest Tribal LTAP

Contact Richard A. Rolland, Director
Eastern Washington University
(509) 358-2225 or 1-800-583-3187
e-mail: rrolland@ewu.edu

Transportation Planning Procedures & Guidelines, and New Indian Reservation Roads Bridge Program
December 7-8, 1999, Portland, OR. $25. For tribal and state transportation planners and engineers, council members, state MPOs and RTPOs. The Tribal Transportation Planning Procedures and Guidelines (TPPG) course will feature discussion and interpretation of the TPPG document released by FHWA and BIA for implementation October 1999. The Indian Reservation Road Bridge Program (IRRBP) course will discuss the project selection/fund allocation procedures for the IRRBP which were published by the Federal Highway Administration as an "interim final rule" in the Federal Register on July 19, 1999. Topics include: program funding, what is a deficient bridge, eligibility requirements, what does an application package consist of, what are the procedures for accessing these funds, what can the funds be used for, how does ownership impact project selection, deficient bridge list generation, cost overruns and underruns. The status of current projects submitted to date will also be discussed. Although the new polices and procedures are directed to the BIA, Tribal officials and planners, state, county, MPO and RTPO planners are specifically invited to attend to learn more about the IRR programs and participate in discussions regarding coordination of planning, project selection and implementation efforts.

WSDOT, Staff Development

Contact Laurel Gray in the T2 Center (360) 705-7386

The 14 WSDOT construction courses listed below are offered in various locations around the state whenever enough interest warrants scheduling a class. You may call the T2 office and have names put on request lists. You will be notified when a class has been scheduled and your name included on the roster. A description of the classes can be faxed to you. No fee.

- PCC Field Testing Procedures (ABT)
- Aggregate Paving Street Inspection (ACB)
- Bituminous Surface Treatment Inspection (ACC)
- Drainage Inspection (ACF)
- Bridge Structures Inspection (ACM)
- Miscellaneous Documentation (ACY)
- Excavation and Embankments Inspection (AC3)
- Nuclear Gauge, Operator Qualification (ALG)
- Nuclear Gauge, Overview for Supervisors (ANE)
- Nuclear Gauge, Embankment/Surfacing Pavement Applications (ANQ)
- PCC Pavement Production and Placement (APG)
- Electrical-Illumination and Signals (API)
- Asphalt Concrete Pavement Testing Procedures (BG9)

Certification in Construction Site Erosion and Sedimentation Control
January 19-20, Tri-Cities; January 26-27, Olympia; February 10-11, Kent; February 16-17, Mt. Vernon; March 7-8, Vancouver; March 22-23, Spokane; April 3-4, Seattle. This WSDOT class is for prime contractors and local agencies who are responsible for constructing or inspecting WSDOT projects that involve grading or other forms of soil disturbance. Prime contractors with current or pending WSDOT contracts and local agency personnel with jurisdiction over WSDOT projects will be given priority. This two-day course will fulfill the requirement for Certification in Construction Site Erosion and Sediment Control and Erosion Control Lead General Special Provision (GSP) to the Standard Specifications for Road, Bridge, and Municipal Construction. Contact the Environmental Affairs Office at WSDOT to enroll: (360) 705-7483.

TRANSPEED, University of Washington

Contact Julie Smith
(206) 543-5539, fax (206) 543-2352
http://www.engr.washington.edu/~uw-epp/Transpeed/index.html

Course participants will earn CEUs for each course completed. The CEU is a nationally recognized measure of participation in non-credit continuing education programs which meet established criteria for increasing knowledge and competency.

Prices shown are for local agencies/all others.

Design and Application of Roadway Safety Features
November 29-December 1, Lacey; December 13-15, Vancouver; January 17-21, Lacey. $220/420.

Manual on Uniform Traffic Control Devices
December 1-3, Seattle. $220/420, $60 textbook fee.

Stormwater Engineering for Transportation Professionals
December 8-10, Vancouver. $220/420.

Public Works Construction Project Management
January 10-11, Seattle. $180/360, $75 textbook fee.

Construction Inspection of Public Works Projects
January 13-14, Seattle. $180/360.

University of Washington

Professional Engineering Practice Liaison (PEPL)
(206) 543-5539, fax (206) 543-2352
http://www.engr.washington.edu/~uw-epp/Epupsc.html

All classes are held on or near the University of Washington campus in Seattle. Prices indicate early registration/late registration. Early registration fees are applicable up until two weeks before the date of the course.

Effective Writing for Technical Professionals
January 6, 11, 13, 18 and 20, 2000 (five sessions) 3:30 pm to 6:30 pm. $335/360.

Construction Site Erosion and Pollution Control
January 12-13, 2000. 8:30 am to 4:30 pm. $365/395.

Geology and Geomorphology of Stream Channels
February 16-17, 2000. 8:30 am to 4:30 pm.
$365/395.

Stormwater Treatment: Chemical, Biological and Engineering Principles
February 23-24, 2000, Vancouver. 8:30 am to 4:30 pm.
$365/395.

Designing and Implementing Habitat Modifications for Salmon and Trout
March 28-30, 2000. 8:30 am to 4:30 pm.
$455/495.

Achieving Real Success as a Project Manager
March 30-31, 2000. 8:00 am to 5:00 pm.
$365/395.

Hydrologic Modeling and Design of Retention/ Detention Facilities
April 12-14, 2000. $510/545.

Design and Retrofit of Culverts for Fish Passage in the Northwest
April 26-27, 2000. 8:30 am to 4:30 pm. $345/375.

New Technologies and Concepts in Stormwater Treatment
May 8-9, 2000, Vancouver;
May 11-12, 2000, North Seattle.
$365/395.

Seismic Hazard Analysis for Constructed Facilities
May 19-20, 2000. $365/395.

Summer and Autumn 2000

Quaternary and Engineering Geology of the Central and Southern Puget Sound Lowland
August 24-26, 2000.

Effective Writing for Technical Professionals
September 12, 14, 19, 21, and 26, 2000.

Alternative On-Site Stormwater Management Techniques
September 19-10, 2000.

Site Specific Seismic Liquefaction Analysis
September 29-30, 2000.

Stormwater Treatment by Media Filtration
October 12-13, 2000.

Seismic Site Response Analysis
December 3-4, 8:30 am to 4:30 pm. 1.4 CEUs.
$345/375.

Effective Project Negotiation Skills
December 8, 8:30 am to 4:30 pm. 0.7 CEUs. $215/240.

Creating Winning Technical Presentations
December 9-10, 8:30 am to 4:30 pm. 1.4 CEUs.
$345/375.

Conferences and Meetings

Road and Street Maintenance Supervisors' School - West
December 6-8, 1999, Sheraton, Tacoma. For information call WSU (509) 335-3530.

Road Builders' Clinic
March 7-9, 2000, Coeur d'Alene Resort, Coeur d'Alene, ID. The Superpave Asphalt Workshop will be March 6-7. Washington State University Conferences and Institutes is sponsoring. Contact them at (509) 335-3530 for information.

2000 Traffic Rondabouts Conference
May 1-3, 2000, Doubletree Hotel at Seatac Airport, Seatac, WA. Contact Darlene Sharar at WSDOT for further information, (360) 705-7383.

Pacific Northwest Bridge Maintenance Conference
April 25-26, 2000, Doubtree Hotel Columbia River, Portland Oregon. Contact Gary Bowling (503) 986-3402 or gary.l.bowling@state.or.us; or Greg Kolle (360) 705-7379 or Kolleg@wsdot.wa.gov

2000 Annual LTAP Conference
July 30 - August 2, 2000 Boise, Idaho

Fifth International Conference on Managing Pavements
August 11-14, 2001, Washington State Conference and Trade Center, Seattle. For more information: (206) 543-5539 of pavments@engr.wasington.edu

PUBLIC WORKS

South Puget Sound Community College
PUBLIC WORKS COURSES

Winter 2000 -

Public Works 101 - INTRODUCTION TO PUBLIC WORKS

Item Number: 6145 Course Number: PWKS 101HN

Class Begins - Monday, January 3, 2000
This course will provide students a basic introduction to an array of public works topics. In addition to studying the various functions and departments of public works organizations, emphasis will be placed on report writing and presentation skills. *Credits: 5*

- **Monday/Wednesday**
  6:30 p.m. - 8:45 p.m.
  Instructor: Jim Nichols
  Hawks Prairie Center - Rm 109
  1401 Marvin Rd. NE, Suite 201
  Lacey, WA 98516

Public Works 242 - OPERATIONS AND MAINTENANCE

Item Number: 6148 Course Number: PWKS 242HN

Class Begins - Tuesday, January 4, 2000
Overview of the differences between operations and maintenance functions and how they relate to providing the general public with a safe, well-maintained infrastructure. Includes maintenance management, preventive versus reactive maintenance, projects scheduling, customer service, public involvement, and the various operation and management functions as they relate to streets, water, sewer, fleet, parks, etc. *Credits: 5*

- **Tuesday/Thursday**
  6:30 p.m. - 8:45 p.m.
  Instructor: Ken Corcoran
  Hawks Prairie Center - Rm 108
  1401 Marvin Rd. NE, Suite 201
  Lacey, WA 98516

Spring 2000 -

Public Works 225 - MANAGEMENT OF PUBLIC WORKS

This course is an overview for the management of public works within a local governmental structure. Topics include the public works organization, structure, and decision-making processes. *Credits: 5*

- **Day/Time/Location - To be announced**

For general and program questions, Contact:
Jim Nichols, Program Coordinator at 360/754-7711, ext. 590 or Joan Slighte at 360/754-711, ext. 301

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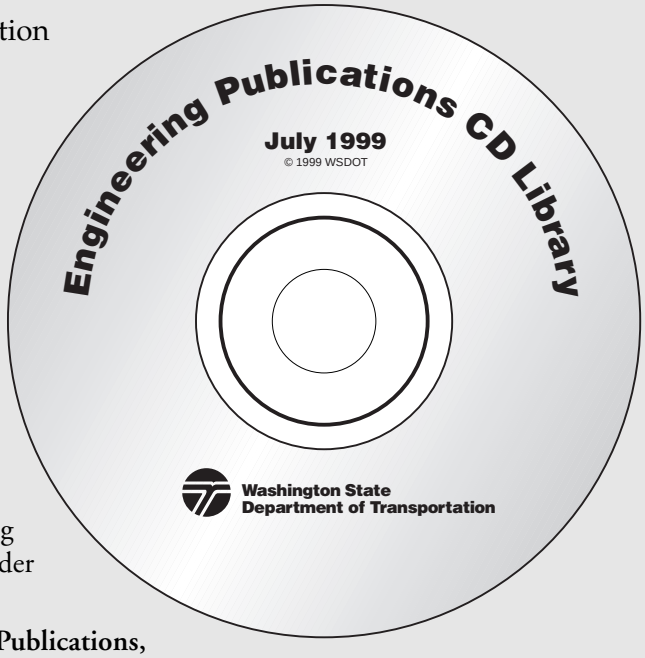

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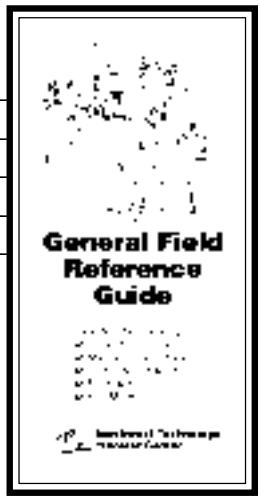

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T² Web Site

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Published by:
WSDOT Highways & Local Programs Service Center
Washington State Technology Transfer Center
310 Maple Park Ave. SE
PO Box 47390
Olympia, WA 98504-7390

Secretary of Transportation:
Sid Morrison

Assistant Secretary, H&LP:
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Publication Editor:
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Graphic Designer:
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Produced by:
T2 Bulletin
A Newsletter of the
Local Technology
Assistance Program
(LTAP)

Washington State
Department of Transportation
Highways & Local Programs Service Center

U.S. Department of Transportation
Federal Highway Administration

T2 Bulletin

A newsletter of the Local Technical Assistance Program (LTAP)

Issue Number 64, Fall 1999

The Local Technical Assistance Program (LTAP) is a national program financed by the Federal Highway Administration (FHWA) and individual state transportation departments. Administered through Technology Transfer (T^2) Centers in each state, LTAP bridges the gap between research and practice by translating state-of-the-art technology into practical application for use by local agency transportation personnel.